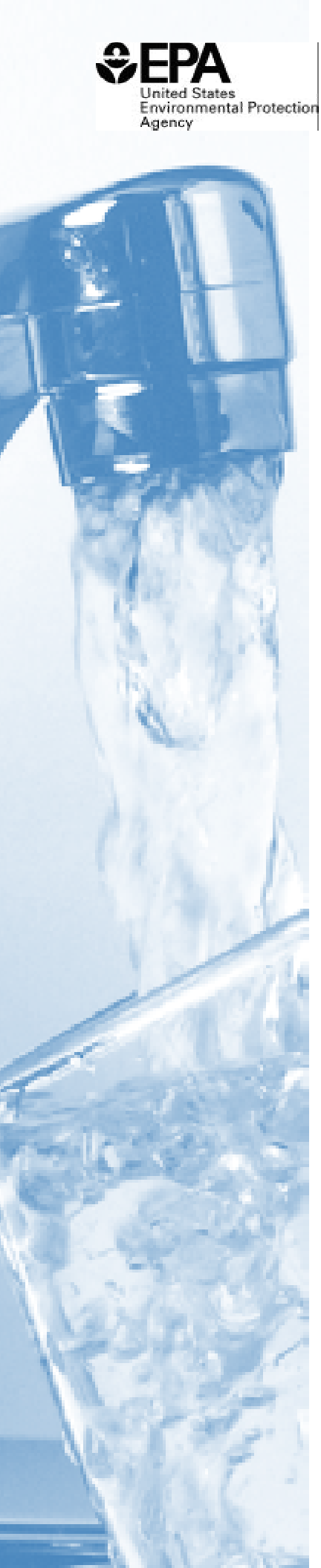

Long Term 2 Enhanced Surface Water Treatment Rule: A Quick Reference Guide For Schedule 1 Systems

Overview of the Rule

Title	Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR) 71 FR 654, January 5, 2006, Vol. 71, No. 3
Purposes	Improve public health protection through the control of microbial contaminants by focusing on systems with elevated *Cryptosporidium* risk. Prevent significant increases in microbial risk that might otherwise occur when systems implement the Stage 2 Disinfectants and Disinfection Byproducts Rule (Stage 2 DBPR).
General Description	The LT2ESWTR requires systems to monitor their source water, calculate an average *Cryptosporidium* concentration, and use those results to determine if their source is vulnerable to contamination and may require additional treatment.
Utilities Covered	▸ Public water systems (PWSs) that use surface water or ground water under the direct influence of surface water (GWUDI). ▸ Schedule 1 systems include PWSs serving 100,000 or more people OR wholesale PWSs that are part of a combined distribution system in which the largest system serves 100,000 or more people.

Major Provisions

Control of *Cryptosporidium*

Source Water Monitoring	Filtered and unfiltered systems must conduct 24 months of source water monitoring for *Cryptosporidium*. Filtered systems must also record source water *E. coli* and turbidity levels. Systems will be classified into one of four "Bins" based on the results of their source water monitoring. These systems may also use previously collected data (i.e., Grandfathered data), instead of monitoring. Filtered systems providing at least 5.5 log of treatment for *Cryptosporidium* and unfiltered systems providing at least 3-log of treatment for *Cryptosporidium* and those systems that intend to install this level of treatment are not required to conduct source water monitoring.
Installation of Additional Treatment	Filtered systems must provide additional treatment for *Cryptosporidium* based on their bin classification (average source water *Cryptosporidium* concentration), using treatment options from the "microbial toolbox." Unfiltered systems must provide additional treatment for *Cryptosporidium* using chlorine dioxide, ozone, or UV.
Uncovered Finished Water Storage Facility	Systems with an uncovered finished water storage facility must either: ▸ Cover the uncovered finished water storage facility; or, ▸ Treat the discharge to achieve inactivation and/or removal of at least 4-log for viruses, 3-log for *Giardia lamblia*, and 2-log for *Crytosporidium*.

Disinfection Profiling and Benchmarking

After completing the initial round of source water monitoring any system that plans on making a significant change to their disinfection practices must:

- Create disinfection profiles for *Giardia lamblia* and viruses;
- Calculate a disinfection benchmark; and,
- Consult with the state prior to making a significant change in disinfection practice.

Bin Classification For Filtered Systems

Cryptosporidium Concentration (oocysts/L)	Bin Classification	Additional *Cryptosporidium* Treatment Required			Alternative Filtration
		Conventional Filtration	Direct Filtration	Slow Sand or Diatomaceous Earth Filtration	
< 0.075	Bin 1	No additional treatment required	No additional treatment required	No additional treatment required	No additional treatment required
0.075 to < 1.0	Bin 2	1 log	1.5 log	1 log	(1)
1.0 to < 3.0	Bin 3	2 log	2.5 log	2 log	(2)
≥ 3.0	Bin 4	2.5 log	3 log	2.5 log	(3)

(1) As determined by the state (or other primacy agency) such that the total removal/inactivation > 4.0-log.
(2) As determined by the state (or other primacy agency) such that the total removal/inactivation > 5.0-log.
(3) As determined by the state (or other primacy agency) such that the total removal/inactivation > 5.5-log.

Inactivation Requirements for Unfiltered Systems

Cryptosporidium Concentration (oocysts/L)	Required *Cryptosporidium* Inactivation
≤ 0.01	2-log
> 0.01	3-log

Critical Deadlines and Requirements

For Drinking Water Systems (Schedule 1)

July 1, 2006	**Systems must submit their:** ▸ **Sampling schedule that specifies the dates of sample collection and location of sampling for initial source water monitoring to EPA electronically; or** ▸ **Notify EPA or the state of the systems intent to submit results for grandfathering data; or** ▸ **Notify EPA or the state of the systems intent to provide at least 5.5 log of treatment for *Cryptosporidium*. Systems should consult with EPA or their state prior to submitting this notice.**
October 2006	**No later than this month systems must begin 24 months of source water monitoring.**
December 10, 2006	**System submit results for first month of source water monitoring.**
December 1, 2006	**No later than this date, systems must submit monitoring results for data that they want to have grandfathered.**
April 1, 2008	**No later than this date, systems must notify the EPA or the state of all uncovered treated water storage facilities.**
September 2008	**No later than this month, systems must complete their inital round of source water monitoring.**
March 2009	**No later than this month, filtered systems must report their initial bin classification to the EPA or the state for approval.**
March 2009	**No later than this month, unfiltered systems must report the mean of all *Cryptosporidium* sample results to the EPA or the state.**
April 1, 2009	**No later than this date, uncovered finished water storage facilities must be covered, or the water must be treated before entry into the distribution system, or the system must be in compliance with a state approved schedule.**
March 31, 2012	**Systems must install and operate additional treatment in accordance with their bin classification.†**
January 1, 2015	**Systems must submit their sampling schedule that specifies the dates of sample collection and location of sampling for second round of source water monitoring to the state.**
April 1, 2015	▸ **Systems are required to begin conducting a second round of source water monitoring.** ▸ **Based on the results, systems must re-determine their bin classification and provide additional *Cryptosporidium* treatment, if necessary.**

For States

January - June 2006	**States are encouraged to communicate with affected systems regarding LT2ESWTR requirements.**
April 1, 2007	**States are encouraged to communicate LT2ESWTR requirements related to treatment, uncovered finished water reservoirs, and disinfection profiling to affected systems.**
October 5, 2007	**States are encouraged to submit final primacy applications or extension requests to EPA.**
January 5, 2008	**Final primacy applications must be submitted to EPA, unless granted an extension.**
June 30, 2008	**States should begin awarding *Cryptosporidium* treatment credit for primary treatments in place.**
January 5, 2010	**Final primacy revision applications from states with approved 2-year extensions agreements must be submitted to EPA.**
December 31, 2012	**States should award *Cryptosporidium* treatment credit for toolbox option implementation.**

† States may allow up to an additional 24 months for compliance for systems making capital improvements.

For additional information on the LT2ESWTR

Call the Safe Drinking Water Hotline at 1-800-426-4791; visit the EPA web site at www.epa.gov/safewater; or contact your State drinking water representative.

Additional material is available at www.epa.gov/safewater/disinfection/lt2.